

ABSTRACT

ELECTRONIC DEVICES AND THEIR MANUFACTURE

5 An electronic device (70) comprises a thin film transistor (TFT) (9,59),
the TFT including a channel (16) defined in a layer of polycrystalline
semiconductor material (10,48). The polycrystalline semiconductor material is
produced by crystallising amorphous semiconductor material (2) using metal
atoms (6) to promote the crystallisation process. The polycrystalline
10 semiconductor material (10) includes an average concentration of metal atoms
in the range 1.3×10^{18} to 7.5×10^{18} atoms/cm³. This enables polycrystalline
semiconductor TFTs to be formed with leakage properties acceptable for use
in active matrix displays using a metal induced crystallisation process of
duration significantly less than previously thought necessary. Furthermore, this
15 process duration reduction facilitates the reliable fabrication of poly-Si TFTs
having bottom gates formed of metal.